OPTIMUM CLEANING OF ACALA SJ-1 COTTON

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By

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SUMMARY

A ginning test was conducted during 1971-72 at the Southwestern Cotton Ginning Research Laboratory, Mesilla Park, N. Mex., to determine the optimum cleaning machinery combination for Acala SJ-1 cotton. The study was undertaken because of growers' complaints that Acala SJ-1 grades were generally lower than those received in the past on Acala 4-42 cotton.

Several cleaning treatments were compared as to their effect on turnouts, fibrograph measurements, strength, class indices, colorimeter measurements, nonlint contents, nep counts, lint values, producer's returns, and other variables.

The test indicated that of the seed cotton cleaning treatments tested, the one with three cylinder cleaners, one stick machine, and one extractor-feeder was best. An additional stick machine or cylinder cleaner may have improved results.

The test also indicated that two saw-type lint cleaners plus one air-type lint cleaner were optimum when quality as well as price was considered.

INTRODUCTION

Preliminary tests, conducted in 1970, were used to establish possible optimum cleaning machinery combinations for the 1971-72 tests on Acala SJ-1 cotton discussed in this report.

The Acala SJ-1 cotton variety was adopted by California's San Joaquin Valley producers in 1967. Reports from producers the first few years indicated that SJ-1 was harder for ginners to clean than its predecessor, Acala 4-42. Satisfactory grades were not being obtained because of the difficulty of removing the fine trash (possibly bract) from the lint.

PROCEDURES

Fifteen one-quarter-bale lots of Acala SJ-1 seed cotton were used each year of the study. The seed cotton was picked during the fourth week in October each year south of Wasco, Calif. It was trucked to the Southwestern Cotton Ginning Research Laboratory at Mesilla Park, N. Mex., and ginned during the first week in November each year.

The 15 lots allowed five replications of three seed cotton cleaning treatments. The treatments used in 1972 were identical to those used in 1971.

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Because the treatments were identical, a combined analysis was used for the 2 years' data. All lots were processed through an extractor-feeder, a saw-type gin stand, an air-type lint cleaner, and three saw-type lint cleaners. The machinery used with each seed cotton cleaning treatment is shown in table 1.

The 1970 treatments were selected to determine whether extractors (such as stick machines) or cylinder cleaners were more efficient in removing the SJ-1 trash and whether a "maximum" cleaning treatment including two of each type of cleaner would be best. The results indicated that cylinder cleaners were more efficient than extractors for removing the SJ-1 trash. The maximum cleaning treatment gave little improvement over the cylinder cleaner treatment. Therefore, it was decided to use two six-cylinder cleaners and one stick machine for one of the 1971 treatments. The other two treatments were chosen to indicate the advantages and disadvantages of adding either a second stick machine or a third cylinder cleaner to this basic treatment.

Each year, drying was used to obtain a lint moisture content of 6 to 8 percent. Processing rates were nominal for the machinery, that is, 5 1/2 bales per hour for the 50-inch-wide cylinder cleaners.

Samples were taken at the wagon to determine seed cotton trash and moisture contents prior to processing. Seed samples were taken for linters, seed damage, and germination determinations for class, nonlint, color, strength nep, and fibrograph determinations. A complete record of trash collections from the cleaning machinery, lint and seed cotton weights, and processing times was maintained.

Data, except for those obtained after each stage of lint cleaning, were analyzed as a randomized complete block design with three treatments and five replications.

The inclusion of three saw-type lint cleaners and sampling after each stage allowed lint cleaning effects to be evaluated. The "no-lint-cleaning" data were taken after the air-type lint cleaner. The air-type lint cleaner is

TABLE 1.--Machinery used with each seed cotton cleaning treatment, 1971-72[1/]

Machine	Seed cotton cleaning treatment[2/]		
	1	2	3
6-cylinder cleaner	X	X	X
Stick machine			X
6-cylinder cleaner	X	X	X
Stick machine	X	X	X
6-cylinder cleaner		X	
Extractor-feeder	X	X	X
Gin stand	X	X	X
Air-type lint cleaner	X	X	X
Saw-type lint cleaner	X	X	X
Do	X	X	X
Do	X	X	X

1/ Treatments were identical in 1971 and 1972.
2/ X indicated the machine was used.

is not counted as a stage of lint cleaning in this publication. A split plot analysis of variance with lint cleaning associated with the subplots was used for these data. The split plot design included three seed cotton cleaning treatments, four lint cleaning treatments, and five replications.

RESULTS

The results of the analysis of the test data, except for those obtained after each stage of lint cleaning, are shown in table 2.2/

Results of the analysis of the lint data taken after each stage of lint cleaning are tabulated in tables 3 to 6. Table 3 lists the significance levels for these analyses. Results for the seed cotton cleaning treatments are shown in table 4. Table 5 tabulates results for the lint cleaning treatments. Table 6 gives the results for the treatment X lint cleaning interaction.

Table 5 will be referred to for lint cleaning effects, tables 2 and 4 for treatment effects, and table 6 for the treatment X lint cleaning interaction, where it is more significant than the treatment effects. In general, only significant results will be discussed. Differences between years and replications were significant in many cases but will not be discussed since this was not a major concern of the study.

Trash Collections

The average trash content for the 1971 and 1972 cottons was 6.75 percent. The breakdown of the trash was as follows: Hulls, 7.5 percent; sticks, 11.3 percent; motes, 21.5 percent; and fine trash, 59.7 percent.

Treatment 1 removed less trash from 1,000 lbs seed cotton during seed cotton cleaning (64.3 lbs) than treatments 2 (69.1 lbs) or 3 (67.9 lbs) (table 2). The indication is that either a stick machine or a cylinder cleaner added to the basic cleaning treatment resulted in additional trash being removed during seed cotton cleaning.

Fibrograph Data

Generally, each stage of lint cleaning shortened the span length. The 2.5-percent span length after one lint cleaner (1.18 in) was lower than that before lint cleaning (1.19 in) (table 5). The span length after three lint cleaners (1.17 in) was lower than that after one lint cleaner (1.18 in). There was no difference at the 1/2-percent significance level between values after one and two lint cleaners or between those after two and three lint cleaners.

The uniformity ratio also tended to decrease with additional lint cleaning (table 5). The ratio was lower after three stages of lint cleaning (47.4 percent) than after any other stage.

Table 6 indicates that after two stages of lint cleaning treatment 3 had a higher uniformity ratio (49.0 percent) than treatments 2 (48.0 percent) or 1 (47.6 percent). After one stage of lint cleaning, treatment 2 was high (48.8 percent), treatment 3 intermediate (48.5 percent), and treatment 1

2/ For convenience, tables 2 through 7 are grouped together in the Appendix, beginning on p. 7.

low (47.6 percent). However, these treatment effects on the uniformity ratio seem to be meaningless, and it is thought that the apparent differences are not real even though statistically significant.

Pressley Strength

Table 5 indicates an apparent increase in the strength due to the first stage of lint cleaning.

Classification Data

The analyses for color, leaf, and composite indices were made using the coded index values listed in table 7. The data indicated that all cotton was in the white grades (second digit either a 0 or a 1); therefore, the combination of grades was simplified. A plus grade (second digit 0) was called a half grade and coded as such. For instance, a 40 (strict low middling plus) was coded 3.5. Other grades were coded as shown.

Differences in composite classification indices are shown in table 6. With no lint cleaning, the index was better for treatment 2 (4.8) than for treatment 1 (5.1) or treatment 3 (5.1). Differences are also indicated for leaf indices when no lint cleaning was used. The leaf index for treatment 2 was better (4.8) than for treatment 1 (5.3) or treatment 3 (5.3). These data indicate an advantage of three cylinder cleaners and one stick machine over two cylinder cleaners and two stick machines. This advantage is a result of cylinder cleaners being better than stick machines for removing the SJ-1 trash as established in the 1970 preliminary test.

A second stick machine or a third cylinder cleaner improved the composite index. After three lint cleaners, the composite index was better for treatments 2 (3.0) and 3 (3.0) than for treatment 1 (3.2).

No differences due to treatments were indicated for color indices, staple length, or micronaire.

Color, leaf, and composite index data all indicate the same lint cleaning effects (table 5). Each stage of lint cleaning improved each index.

The classers' staple length was longer after two stages of lint cleaning (36.5 32/in) than before lint cleaning (36.0 32/in) or after one (36.0 32/in) or three (36.1 32/in) stages (table 5). Apparently, smoothing of fibers resulted in the fibers appearing longer after some lint cleaning even through length decreased according to fibrograph data.

In general, the micronaire tended to decrease with each additional stage of lint cleaning although most differences were not statistically significant. The micronaire was significantly lower after two stages of lint cleaning (4.42) than before lint cleaning (4.48). The effect on micronaire, which was small and of little practical consequence, was probably due to a decrease in the trash level due to lint cleaning. Other unpublished research data also indicate that micronaire is affected by trash content.

Colorimeter Data

Lint cleaning tended to improve both reflectance and yellowness (table 5). Each stage, except the last, gave a significant increase in reflectance. The second stage did not give a statistically significant increase in the yellowness

over that with one stage, nor did the third stage increase it significantly over that with two stages.

Treatments had an effect on reflectance independent of lint cleaning levels (table 4). Treatment 2 resulted in a higher reflectance (75.2) than did treatment 3 (74.6). Treatment 1 reflectance (74.9) was not different from that for the other two treatments. These data are consistent with treatment 2 removing the most trash. These differences, although statistically significant, are small and were not noticed by the classer as evidenced by the absence of significant differences in color indices.

Nonlint Content

Lint from treatment 2 had a lower visible and total nonlint content than that from treatments 1 or 3 (table 4). This finding is consistent with treatment 2 removing the most trash.

Each stage of lint cleaning decreased the amount of visible and total nonlint (table 5).

Nep Count

Each stage of lint cleaning increased the number of neps in the lint (table 5). There were no treatment effects.

Lint Value

Each stage of lint cleaning increased the lint value (table 5).

The lint value is based on the loan value calculated from micronaire, staple, and grade data for individual lots.

Treatment 2 resulted in a higher lint value (21.29 cents/lb) than treatments 1 (20.90 cents/lb) or 3 (20.90 cents/lb) (table 4). The treatment X lint cleaning interaction (table 6) indicates treatment 2 tended to have a higher lint value, but the difference is only significant with no lint cleaning. This result is consistent with treatment 2 removing the most trash in seed cotton cleaning.

Producer's Return

The producer's return is defined as the loan value of the lint and associated nonlint produced by 1,500 lbs of seed cotton.

Each stage of lint cleaning increased the return although the difference between two ($97.05/1,500 lbs seed cotton) and three ($99/1,500 lbs seed cotton) stages was not statistically significant at the 0.5-percent level (table 5).

Table 6 indicates that with no lint cleaning, treatment 2 resulted in a higher return ($89.15/1,500 lbs seed cotton) than treatment 1 ($84.76/1,500 lbs seed cotton) or 3 ($84.22/1,500 lbs seed cotton). This is consistent with seed cotton cleaning trash removal results.

CONCLUSIONS

Most growers' complaints concerning Acala SJ-1 cotton have been that the grades were low. In most cases in this study, three stages of lint cleaning were required to produce middling cotton. However, grade should not be the overriding factor in selecting cleaning systems because weight is lost in cleaning for a higher grade. The producer's return represents the gross return to the producer, which takes into account the seed cotton turnout as well as price factors. The producer's return should be maximized--not the grade. However, quality can not be neglected to increase the producer's return or grade even though price may not be determined by quality.

In all cases where significant differences were due to seed cotton cleaning treatments, treatment 2 was the best. Treatment 2 was significantly better than treatments 1 and 3 in nonlint contents, composite classification index, lint value, and producer's return. Treatment 2 was not significantly different from treatment 3 in trash removal in seed cotton cleaning. Treatment 2 was not significantly different from treatment 1 in reflectance. Therefore, of the treatments tested, treatment 2 with three cylinder cleaners and one stick machine was superior.

Each of the three stages of saw-type lint cleaning appeared to improve those factors related to trash in the lint--color, leaf, and composite indices, reflectance, yellowness, nonlint content, lint value, and producer's return. The third stage gave no significant improvement in reflectance, yellowness, or producer's return. The effects indicated for staple length, strength, and micronaire are not felt to be repeatable, except that micronaire will tend to decrease as trash is removed. Each stage tended to decrease the 2.5-percent span length and uniformity ratio and increase the number of neps. When all of these factors are considered, it appears that two stages of saw-type lint cleaning are best where one air-type lint cleaner is used. The data indicate that the third stage of saw-type lint cleaning with one air-type lint cleaner would probably increase the producer's return (this increase was not significant at the 0.5-percent level), but quality would be adversely affected.

Recommendations resulting from this study are as follows: If an air-type lint cleaner is used in the lint cleaning system, two saw-type lint cleaners are recommended. In this test, the third saw-type lint cleaner removed about the same amount of trash as the air-type lint cleaner. Therefore, if an air-type lint cleaner is not used, three saw-type lint cleaners would probably be required for optimum results. In either case, three cylinder cleaners, one stick machine, and an extractor-feeder are recommended.

Acala SJ-2 is being increased for commercial use in the San Joaquin Valley in 1974. Since this variety is closely related to SJ-1, the results of this study should apply to SJ-2.

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Appreciation is also expressed to Doug Peters of Maple Leaf Farms, Wasco, Calif., for cooperating in furnishing the cotton required for this study.

APPENDIX

TABLE 2.--Results of analysis for treatment effects[1/2/]

Measurement	1971-72 treatment means[3/]			Signif. level, %
	1	2	3	
Processing rates:				
Cleaning rate, lbs seed cotton/hr	7,975	8,021	8,255	NS
Ginning rate, lbs lint/saw/hr	24.3	24.0	24.4	NS
Moistures:				
Wagon seed cotton, %	9.9	10.2	10.8	NS
Feeder seed cotton, %	9.0	9.1	9.2	NS
First lint cleaner lint, %	6.6	6.5	6.6	NS
Lint slide lint, %	4.9	4.9	5.0	NS
Wagon fractionation (avg. of 3):				
Hulls, %	.43	.60	.54	NS
Sticks, %	.75	.79	.77	NS
Motes, %	1.38	1.50	1.49	NS
Fine, %	4.04	4.05	3.92	NS
Total trash, %	6.60	6.94	6.71	NS
Seed properties:				
Linters, %	15.8	15.4	15.6	NS
Germination, %	81.3	82.2	77.5	NS
Damage, %	18.8	18.3	18.4	NS
Trash collections[4/]:				
Before feeder, lb	43.5a	50.9 b	49.8 b	.5
Before gin stand, lb	64.3a	69.1 b	67.9 b	.5
Turnouts:				
No lint cleaning, %	31.5	31.1	31.3	NS
1 lint cleaner, %	30.0	29.8	29.8	NS
2 lint cleaners, %	29.4	29.2	29.2	NS
3 lint cleaners, %	29.0	28.8	28.8	NS

1/ Means for a given year followed by the same letter are not significantly different at the level indicated according to Duncan's Multiple Range Test.

2/ NS means not significant at the 5-percent level or higher.

3/ Treatment 1 = 6-cylinder cleaner, 6-cylinder cleaner, stick machine.
Treatment 2 = 6-cylinder cleaner, 6-cylinder cleaner, stick machine, 6-cylinder cleaner.
Treatment 3 = 6-cylinder cleaner, stick machine, 6-cylinder cleaner, stick machine.

4/ Per 1,000 lbs seed cotton.

TABLE 3.--Significance levels for 1971-72 combined analysis for lint data

Measurement	Significance levels, %[1]						
	Years	Treatments	Years X treatments	Lint cleaning	Years X lint cleaning	Treatments X lint cleaning	Years X treatments X lint cleaning
Fibrograph:							
2.5% span length, in	0.5	NS	NS	0.5	NS	NS	NS
U. ratio, %	.5	NS	NS	.5	1	2.5	NS
Pressley strength, 0-in gage, 1,000 p.s.i.	.5	NS	NS	5	2.5	NS	NS
Class:							
Color, index	.5	NS	NS	.5	.5	NS	NS
Leaf, index	.5	NS	NS	.5	.5	5	NS
Comp., index	.5	NS	NS	.5	.5	.5	.5
Staple, 1/32 in	.5	NS	NS	.5	.5	NS	NS
Mike, reading	.5	NS	NS	1	2.5	NS	NS
Colorimeter:							
Reflectance, R_d	5	2.5	NS	.5	.5	NS	NS
Yellowness, +b	.5	NS	NS	.5	.5	NS	NS
Nonlint content:							
Visible, %	.5	.5	NS	.5	.5	.5	NS
Total, %	.5	.5	NS	.5	.5	.5	NS
Neps, No./100 in^2	.5	NS	NS	.5	.5	NS	NS
Lint value, cents/lb	.5	5	NS	.5	.5	5	NS
Producer's return, dollars/1,500 lbs seed cotton	.5	NS	NS	.5	.5	5	NS

1/ NS means not significant at the 5-percent level or higher.

TABLE 4.--Results of split plot analysis for treatment effects on lint data[1/2/]

Measurement	1971-72 data[3/]			
	Treatment means			Signif.
	1	2	3	level, %
Fibrograph:				
2.5% span length, in	1.17	1.18	1.18	NS
U. ratio, %	47.9	48.2	48.4	NS
Pressley strength,				
0-in gage, 1,000 p.s.i.	99.7	99.3	99.5	NS
Class:				
Color, index	3.9	3.8	3.9	NS
Leaf, index	4.1	3.9	4.1	NS
Comp., index	4.0	3.8	4.0	NS
Staple, 1/32 in	36.1	36.2	36.2	NS
Mike, reading	4.43	4.45	4.46	NS
Colorimeter:				
Reflectance, R_d	74.9 ab	75.2 a	74.6 b	2.5
Yellowness, +b	8.20	8.24	8.20	NS
Nonlint content:				
Visible, %	2.65a	2.26 b	2.64a	.5
Total, %	3.17a	2.67 b	3.09a	.5
Neps, No./100 in^2	12.3	12.8	12.0	NS
Lint value, cents/lb	20.90a	21.29 b	20.90a	5
Producer's return,				
dollars/1,500 lbs seed cotton	93.72	94.89	93.20	NS

1/ Means for a given year followed by the same letter are not significantly different at the level indicated according to Duncan's Multiple Range Test.

2/ NS means not significant at the 5-percent level or higher.

3/ Treatment 1 = 6-cylinder cleaner, 6-cylinder cleaner, stick machine.
Treatment 2 = 6-cylinder cleaner, 6-cylinder cleaner, stick machine, 6-cylinder cleaner.
Treatment 3 = 6-cylinder cleaner, stick machine, 6-cylinder cleaner, stick machine.

TABLE 5.--Results of 1971-72 combined analysis for lint cleaning effects on lint data[1/2/]

Measurement	Lint cleaning means				Signif. level, %
	0	1	2	3	
Fibrograph:					
2.5% span length, in	1.19a	1.18 b	1.17 bc	1.17 c	0.5
U. ratio, %	48.7 a	48.3 a	48.2 a	47.4 b	.5
Pressley strength,					
0-in gage, 1,000 p.s.i.	98.4 a	99.8 b	100.0 b	99.9 b	5
Class:					
Color, index	4.8 a	4.0 b	3.5 c	3.0 d	.5
Leaf, index	5.1 a	4.1 b	3.8 c	3.1 d	.5
Comp., index	5.0 a	4.0 b	3.6 c	3.0 d	.5
Staple, 1/32 in	36.0 a	36.0 a	36.5 b	36.1 a	.5
Mike, reading	4.48a	4.46ab	4.42 b	4.43ab	1
Colorimeter:					
Reflectance, R_d	72.6 a	74.8 b	75.9 c	76.4 c	.5
Yellowness, +b	7.91a	8.21 b	8.32 bc	8.40 c	.5
Nonlint content:					
Visible, %	5.08a	2.44 b	1.53 c	1.00 d	.5
Total, %	5.55a	2.76 b	2.12 c	1.47 d	.5
Neps, No./100 in^2	7.7 a	10.6 b	13.3 c	19.2 d	.5
Lint value, cents/lb	18.28a	20.91 b	22.09 c	22.85 d	.5
Producer's return,					
dollars/1,500 lbs seed cotton	86.04a	93.66 b	97.05 c	99.00 c	.5

1/ Means for a given year followed by the same letter are not significantly different at the level indicated according to Duncan's Multiple Range Test.

2/ NS means not significant at the 5-percent level or higher.

TABLE 6.--Results of 1971-72 combined analysis for treatment x lint cleaning interaction effects on lint data

Measurement	Treatment x lint cleaning means[1/2/]					
	Before lint cleaning			After 1st lint cleaner		
	1	2	3	1	2	3
Fibrograph:						
2.5% span length, in	1.19	1.19	1.20	1.17	1.18	1.17
U. ratio, %	49.0 a	48.4 abcd	48.7 ab	47.6 cde	48.8 ab	48.5 abc
Pressley strength,						
0-in gage, 1,000 p.s.i.	99.1	97.8	98.2	100.0	99.1	100.3
Class:						
Color, index	4.9	4.7	4.9	4.0	4.0	4.0
Leaf, index	5.3 a	4.8 b	5.3 a	4.1 c	4.1 c	4.1 c
Comp., index	5.1 a	4.8 b	5.1 a	4.0 c	4.0 c	4.0 c
Staple, 1/32 in	35.8	36.0	36.2	36.0	36.0	36.0
Mike, reading	4.44	4.51	4.48	4.47	4.43	4.49
Colorimeter:						
Reflectance, R_d	72.4	73.3	72.1	75.0	75.0	74.6
Yellowness, +b	7.87	8.00	7.85	8.19	8.19	8.24
Nonlint content:						
Visible, %	5.35a	4.53 b	5.36a	2.58 c	2.13 d	2.62 c
Total, %	5.90a	4.89 b	5.87a	2.89 c	2.47 cd	2.92 c
Neps, No./100 in^2	7.4	8.2	7.6	10.8	10.5	10.4
Lint value, cents/lb	17.90 e	19.04 d	17.90 e	20.93 c	20.93 c	20.86 c
Producer's return,						
dollars/1,500 lbs seed cotton	84.76 f	89.15 e	84.22 f	94.11 cd	93.57 cd	93.29 d

Measurement	Treatment x lint cleaning means[1/2/]						Signif.[3/] level, %
	After 2d lint cleaner			After 3d lint cleaner			
	1	2	3	1	2	3	
Fibrograph:							
2.5% span length, in	1.17	1.17	1.17	1.16	1.17	1.17	NS
U. ratio, %	47.6 cde	48.0 bcde	49.0 a	47.4 e	47.5 de	47.2 e	2.5
Pressley strength,							
0-in gage, 1,000 p.s.i.	99.7	100.0	100.2	99.9	100.3	99.4	NS
Class:							
Color, index	3.4	3.5	3.5	3.1	3.0	3.0	NS
Leaf, index	3.7 d	3.7 d	3.9 cd	3.2 e	3.0 e	3.0 e	5
Comp., index	3.6 d	3.6 d	3.7 d	3.2 e	3.0 f	3.0 f	.5
Staple, 1/32 in	36.5	36.3	36.6	36.0	36.3	36.0	NS
Mike, reading	4.38	4.42	4.46	4.43	4.43	4.43	NS
Colorimeter:							
Reflectance, R_d	76.0	76.1	75.6	76.3	76.7	76.2	NS
Yellowness, +b	8.28	8.30	8.38	8.45	8.45	8.31	NS
Nonlint content:							
Visible, %	1.61 e	1.48 e	1.50 e	1.04 f	.88 f	1.08 f	.5
Total, %	2.30 de	2.03 e	2.02 e	1.57 f	1.29 f	1.54 f	.5
Neps, No./100 in^2	13.2	13.9	12.7	19.1	19.9	18.6	NS
Lint value, cents/lb	22.18 b	22.13 b	21.95 b	22.58ab	23.06a	22.90a	5
Producer's return,							
dollars/1,500 lbs seed cotton	97.79ab	97.10ab	96.25 bc	98.20ab	99.76a	99.03ab	5

1/ Treatment 1 = 6-cylinder cleaner, 6-cylinder cleaner, stick machine.
Treatment 2 = 6-cylinder cleaner, 6-cylinder cleaner, stick machine, 6-cylinder cleaner.
Treatment 3 = 6-cylinder cleaner, stick machine, 6-cylinder cleaner, stick machine.

2/ Means followed by the same letter are not significantly different at the level indicated according to Duncan's Multiple Range Test.

3/ NS means not significant at the 5-percent level or higher.

TABLE 7.--Equivalents for classification index data

Classification	CCC[1/] code numbers	Coded index
Good middling	11	1.0
Strict middling	21	2.0
Middling plus	30	2.5
Middling	31	3.0
Strict low middling plus	40	3.5
Strict low middling	41	4.0
Low middling plus	50	4.5
Low middling	51	5.0
Strict good ordinary plus	60	5.5
Strict good ordinary	61	6.0
Good ordinary plus	70	6.5
Good ordinary	71	7.0

[1/] Commodity Credit Corporation.

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